ABSTRACT

A pore- or particle-size distribution measurement apparatus capable of measuring the size of a pore or a particle in a short time with high accuracy, is provided. When the size of a pore (Y) existing in a porous insulator film (3) or the size of a particle in a thin film is measured, a specimen (5) having the insulator film (3) formed on the surface of a substrate (4) is irradiated, from the surface side thereof, with X-rays R at a specified incident angle θi larger than the total reflection critical angle of the insulator film (3) but not exceeding 1.3 times the total reflection critical angle of the substrate (4). In the irradiated X-rays, among components exiting from the insulator film (3) without entering the pore (Y) and scattering of reflection component of the X-rays reflected on the surface of the substrate (4) after having entered the insulator film (3), the scattered component whose exit angle is larger than that of a component of the reflection component which exits from the insulator film (3) without entering the pore (Y) is detected.